REMARKS

Applicant preliminarily amends the original claims as filed with the amendment of Claim 1, cancellation of Claim 2 and the addition of Claims 3-21. Support for the amended claims can be found throughout the specification.

Entry of the proposed preliminary amendment is respectfully requested. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

Favorable consideration is respectfully solicited.

Respectfully submitted,
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Signed: _____

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Versions With Markings to Show Changes Made

IN THE CLAIMS:

Claim 1 has been amended and Claim 2 has been cancelled. New Claims 3-21 have been added.

1. (Amended) [An apparatus for linearizing the output of a] A communication device with a transmit path [including a plurality of components] and a receive path [both] coupled to a communication medium and with the transmit path and receive path including transmit components and receive components respectively, and the communication device [, and the apparatus] comprising: [;]

a training module for transmitting on the transmission path [selected signals] a training sequence which [generate] generates a [corresponding] monitor signal on the receive path;

a controller for controlling variations of [varying] at least one control parameter of at least a selected one of the transmit [plurality of] components during the transmission of the [selected signals] training sequence by the [said] training module; [and]

a tone detector on the receive path to detect levels of the monitor signal; and

a processor which utilizes the detected levels of the monitor signal [logic for determining] to determine which among the variations of the at least control parameter [correlates with an optimal level of the corresponding monitor signal on the receive path] minimizes leakage between the transmit path and receive path.

3. (New) The communication device of Claim 1, with the controller further for controlling the locking of the at least one control parameter at the level determined by the processor to minimize leakage during subsequent operation of the communication device.

4. (New) The communication device of Claim 1, wherein the training sequence comprises:

a plurality of tone sets an intermodulation of which generates monitor signal on the

receive path.

5. (New) The communication device of Claim 1, wherein the training sequence comprises:

pairs of tones distributed across a downstream set of X-DSL tones an intermodulation of which generates a single tone corresponding with the monitor signal within an upstream set of X-DSL tones.

6. (New) The communication device of Claim 1, wherein the controller controls variations of at least one of, a bias voltage, an input voltage and a temperature of a selected amplification component within the transmit path of the communication device.

7. (New) The communication device of Claim 1, further comprising on the receive path:

an analog-to-digital converter (ADC) for digitizing the monitor signal;

the tone detector coupled to the ACD for detecting an amplitude of the monitor signal; and

a memory for storage by the processor of the amplitude of the monitor signal and variations of the at least one control parameter corresponding thereto.

8. (New) The communication device of Claim 1, wherein the communication medium comprises one of: a wired medium and a wireless medium.

9. (New) The communication device of Claim 1, wherein the communication device comprises one of: a physical modem and a logical modem.

10. (New) The communication device of Claim 1, further comprising:

an error detector for detecting a difference between an actual level of the monitor signal from the ADC and an estimated level of the monitor signal as estimated by the processor based on a leakage model of the leakage from the transmit path to the receive path together with an initial device model; and

the processor both updating the initial device table to offset the error and subsequently generating an inverse channel model for predistorting signals on the transmission path to linearize the output of the communication device.

11. (New) A method for configuring an output of a communication device with a transmit path and a receive path coupled to a communication medium and with the transmit path and receive path including transmit components and receive components respectively, and the method comprising:

transmitting on the transmission path a training sequence which generates a monitor signal on the receive path;

varying a level of at least one control parameter of at least a selected one of the transmit components during said act of transmitting;

monitoring during the varying act the monitor signal on the receive path;

determining on the basis of the monitoring of the monitor signal the level of the at least one control parameter which minimizes the leakage of training sequence onto the receive path; and

utilizing the level of the at least one control parameter determined in said determining act during subsequent transmissions.

12. (New) The method for configuring of Claim 11, wherein the transmitting act further comprises the act of:

selecting for the training sequence a plurality of tone sets an intermodulation of which generates the monitor signal on the receive path.

13. (New) The method for configuring of Claim 11, wherein the transmitting act further comprises the act of:

selecting pairs of tones distributed across a downstream set of X-DSL tones an intermodulation of which generates a single tone corresponding with the monitor signal within an upstream set of X-DSL tones.

14. (New) The method for configuring of Claim 11, wherein the selected one of the transmit components includes an amplifier and wherein the at least one control parameter of the amplifier varied in said varying act includes at least one of: a bias voltage, an input voltage, and a temperature.

15. (New) The method for configuring of Claim 11, wherein the monitoring act further comprises the acts of:

digitizing the monitor signal received on the receive path;

detecting an amplitude of the monitor signal; and

storing the amplitude of the monitor tone detected in the detecting act for each variation of the level of the at least one control parameter during said act of transmitting the training sequence.

16. (New) The method of Claim 11, wherein the communication medium comprises one of: a wired medium and a wireless medium.

17. (New) The method of Claim 11, wherein the communication device comprises one of: a physical modem and a logical modem.

18. (New) The method of Claim 11, further comprising the acts following the utilizing act of:

estimating the level of the monitor signal throughout the training sequence using a device model table for the components on the transmit and receive paths;

retransmitting the training sequence;

monitoring during the retransmitting act an actual level of the monitor signal on the receive path;

determining an error between the level of the monitor signal estimated in the estimating act and the actual level monitored in the monitoring act and updating the device table accordingly;

generating an inverse channel model to linearize an output of the transmit path utilizing

the device model table; and

predistorting signals transmitted by the transmission path utilizing the inverse channel model generated in the generating act.

19. (New) A means for configuring an output of a communication device with a transmit path and a receive path coupled to a communication medium and with the transmit path and receive path including transmit components and receive components respectively, and the means comprising:

means for transmitting on the transmission path a training sequence which generates a monitor signal on the receive path;

means for varying a level of at least one control parameter of at least a selected one of the transmit components during the training sequence;

means for monitoring during the varying act the monitor signal on the receive path;

means for determining on the basis of the monitoring of the monitor signal the level of the at least one control parameter which minimizes the leakage of training sequence onto the receive path; and

means for utilizing the level of the at least one control parameter determined in said determining act during subsequent transmissions.

20. (New) The means for configuring of Claim 19, wherein the training sequence comprises a plurality of tone sets an intermodulation of which generates the monitor signal on the receive path.

21. (New) The means for configuring of Claim 19, wherein the training sequence comprises pairs of tones distributed across a downstream set of X-DSL tones an intermodulation of which generates a single tone corresponding with the monitor signal within an upstream set of X-DSL tones received on the receive path.